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① Oakwood Intern. School
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Small Groups throughout the week

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NASA to crash Galileo probe

Impact with Jupiter will end 14-year mission

By Andrew Bridges
THE ASSOCIATED PRESS

PASADENA, Calif. — NASA plans to crash its \$1.5 billion Galileo spacecraft into Jupiter next weekend to make sure it doesn't accidentally contaminate the planet's ice-covered moon Europa with bacteria from Earth.

After Galileo's orbit carries it behind Jupiter at 3:49 p.m. EDT Sunday, the aging probe will plunge into the planet's stormy atmosphere at a speed of nearly 108,000 mph. Its suicide dive comes at the end of its 35th orbit of the planet — far longer than the 11 orbits the spacecraft originally was planned to complete.

The heat generated as it streaks through the atmosphere will vaporize the nearly 3,000-pound Galileo and the untold millions of microbial stowaways lurking since its 1989 launch.

The crash will ensure Galileo doesn't hit Europa and spill bacteria onto the ice that caps its enormous oceans.

Europa, a planet-sized moon, is widely believed to have the most promising habitat for extraterrestrial life within the solar system. Were Earth bugs to gain a foothold on Europa, perhaps in pools of water warmed by radioactive plutonium the spacecraft uses to generate electricity, they could compromise future attempts to probe the moon for indigenous life.

"It seems like a good place where, potentially, you can have life and it also seems like a place where Earth life would find it a nice place to live. So why hit it?" said John Rummel, planetary protection officer for the National Aeronautics and Space Administration.

NASA typically scrubs its spacecraft clean of microbes to prevent what it calls the "forward contamination" of other places in the solar system. That wasn't done with Galileo, which NASA originally intended to leave in orbit around Jupiter.

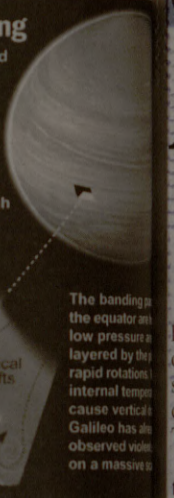
Years ago, however, the promise of Europa convinced NASA to err on the side of caution and plans were made to destroy Galileo, which now is nearly out of the propellant that would allow it to trim its course. The concern is that the gravitational tug of Jupiter could alter the orbit of the spacecraft and cause it to hit Europa or another moon.

The intentional crash will be the first since 1999, when NASA plowed the Lunar Prospector orbiter into the moon. In 1994, NASA crashed the Magellan orbiter into Venus. Satellites routinely crash to Earth, as NASA's Compton Gamma Ray Observatory did in 2000.

Recent research has revealed the tenacity of

Jupiter's icy frosting

On Sept. 21, NASA will send its Galileo spacecraft in a suicide plunge into Jupiter. The planet's colorful covering of thick clouds likely veils a hot, liquid core. A probe released by Galileo in 1995 survived its own hour-long drop through the atmosphere, revealing details of its composition.



Vertical drafts. The banding in the equatorial low-pressure layer is caused by rapid rotation. Internal heating causes vertical drafts. Galileo has observed vertical drafts on a massive scale.

SOURCES: NASA, "The Universe ... and Beyond" by Terence D. Regier

Goodbye Galileo

NASA's Galileo probe has orbited Jupiter since 1995. It is slated to crash into the planet Sept. 21.



SOURCE: NASA

microbial life and its ability to resist extremes of temperature and radiation. Even though Galileo has been buffeted by both, its shielded innards likely harbor viable microbes.

"We in our infinite wisdom thought nothing could survive in those harsh environments, but we are learning every day about things that can," said Claudia Alexander, Galileo's seventh and likely last project manager at NASA's Jet Propulsion Laboratory in Pasadena.

The 14-year mission has been among the most successful, despite a litany of glitches. The primary focus was to have been Jupiter itself, but the planet's quirky, diverse moons — including Europa — stole the spotlight.

NASA hopes to bring some scientific instruments from Galileo before its demise. When it does come, 1,500 people associated with the mission are expected to gather at the lab to mark the occasion.

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